

REMARKS

Status of the Claims and Amendment

Claims 7-9 and 16 have been amended. Claims 1-20 are all the claims pending in this application. Claims 1-4, 8-15 and 17-18 are withdrawn from consideration. Claims 5-7, 16, 19 and 20 are rejected. Claims 5, 6, 19 and 20 are canceled herewith without prejudice or disclaimer.

Claim 7 has been amended to delete “a modified protein comprising an amino acid sequence in which one or plural amino acids are deleted, substituted, inserted, or added in the amino acid sequence of SEQ ID NO: 2, 4, 38, or 40, and having an endoglucanase activity whose reduction in the presence of a surfactant is small”, and to further clarify that the claimed isolated protein is selected from the group consisting of: (a) a protein comprising the amino acid sequence of SEQ ID NO: 2, 4, 38, or 40; and (b) a protein comprising an amino acid sequence having at least 85% identity to the amino acid sequence of SEQ ID NO: 2, 4, 38, or 40 and having an endoglucanase activity. Support for the amendments to claim 7 may be found throughout the specification, for instance, at page 14, paragraph [0032].

Claim 8 has been amended to be dependent on claim 7.

Claim 9 has been amended in a manner similar to claim 7, i.e., to delete “a polynucleotide comprising a nucleotide sequence in which one or plural nucleotides are deleted, substituted, inserted, or added in the nucleotide sequence of SEQ ID NO: 1, 3, 37, or 39, and encoding a protein having an endoglucanase activity whose reduction in the presence of a surfactant is small” and to further clarify that the claimed isolated polynucleotide is selected from the group consisting of: (a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO: 1, 3, 37, or 39; and (b) a polynucleotide hybridizing under stringent conditions to a polynucleotide

consisting of the nucleotide sequence of SEQ ID NO: 1, 3, 37, or 39, and encoding a protein having an endoglucanase activity. Support for the amendments to claim 9 may be found throughout the specification, for instance, at page 6, paragraph [0010].

Claim 16 has been amended to further clarify a protein is produced by steps comprising cultivating a host cell transformed with an expression vector comprising a polynucleotide encoding the protein according to claim 7, and recovering the protein from the host cell or culture obtained by the cultivation. Support for the amendments to claim 16 may be found throughout the specification, for instance, at page 6, lines 2-17 and pages 18-22.

The specification at page 14 has been amended to delete the hyperlink.

No new matter is added.

Drawings

Applicants thank the Examiner for acceptance of the drawings submitted June 7, 2006.

Claim of Priority

Applicants thank the Examiner for acknowledgement of Applicants' claim of priority to JP 2003-409692, as well as receipt of a certified copy of the priority document.

Information Disclosure Statements

Applicants thank the Examiner for acknowledgement of the Information Disclosure Statements filed June 7, 2006, September 24, 2007, and March 5, 2009, by returning signed and initialed copies of the PTO Forms SB/08 submitted therewith.

Election/Restriction

At page 2 of the Office Action, Applicants' election without traverse of Group II (claims 5-7, 16 and 19-20), is acknowledged as well as Applicants' request for rejoinder of the method

claims upon the allowability of the product claims, provided the method claims are amended to include all the limitations of the product claims.

In this respect, Applicants respectfully request rejoinder of Group I method claims 1-4, 8-15 and 17-18 upon indication of allowability or allowance of any of the elected product claims.

Telephone Interview Conducted October 22, 2009

Applicants thank Examiner Chowdhury for conducting a telephone interview with Applicants' representatives, Joseph J. Ruch, Jr. and Tu A. Phan-Kerr on October 22, 2009. During the telephone interview, the rejections under § 112, first and second paragraph as well as the rejection under § 102(b) were discussed. Examiner Chowdhury suggested amending claim 7 to recite an "isolated" protein to help preemptively address a rejection under § 101, and suggested Applicants keep the recitation to the "endoglucanase activity" in claim 7 part (c) to help address the 112, first paragraph rejections. Examiner Chowdhury acknowledged and agreed to consider Applicants' arguments and any further claim amendments after a response is filed.

Response to Objection to the Specification

On page 3 of the Office Action, the disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code on page 14. Deletion of the embedded hyperlink and/or other form of browser-executable code is requested by the Examiner.

In response, the hyperlink has been deleted.

Withdrawal of the grounds of objection is respectfully requested.

Response to Claim Objections

1. Claims 16, 19 and 20 are objected to as depending from non-elected claims.

In response, claim 16 has been amended to be dependent on elected claim 7. Claims 19 and 20 have been canceled without prejudice.

Withdrawal of the grounds of objection is respectfully requested.

2. Claim 7 is objected to because of the recitation “SEQ ID NO: 2, 4, 38 or 40, and having endoglucanase activity, whose reduction in the presence of the surfactant is small”. The Examiner suggests amending claim 7 to recite “SEQ ID NO: 2, 4, 38 or 40, and having endoglucanase activity, wherein the endoglucanase activity reduction in the presence of surfactant is small.”

In response, and solely to advance prosecution of the present application, claim 7 has been amended to delete “whose reduction in the presence of the surfactant is small.”

Withdrawal of the grounds of objection is respectfully requested.

Response To Claim Rejections Under 35 U.S.C. § 112, Indefiniteness

1. Claim 6 is rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Specifically, the Office Action asserts that the phrase “suppressing a reduction” in the recitation “suppressing a reduction in an endoglucanase activity,” is not defined by the claim or specification so that the degree of reduction of endoglucanase activity in the presence of surfactant is unclear.

In response, and solely to advance prosecution of the present application, claim 6 has been canceled without prejudice. Accordingly, the rejection is rendered moot.

2. Claim 7 is rejected under 35 U.S.C. § 112, second paragraph, as being allegedly indefinite. Specifically, the Office Action asserts that the phrase “small” in the recitation “endoglucanase activity whose reduction in the presence of surfactant is small,” is not defined by the claim or specification so that it is unclear what reduction is small.

In response, and solely to advance prosecution of the present application, claim 7 has been amended to delete that “whose reduction in the presence of surfactant is small.”

Accordingly, the rejection is rendered moot.

Response To Claim Rejections Under 35 U.S.C. § 112, First Paragraph

1. Written Description

Claims 5-7, 16 and 19-20 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement.

The Office Action asserts that claims 5-7, 16 and 19-20 are broadly directed to any modified protein from any source having endoglucanase activity or any modified protein comprising an amino acid sequence in which one or plural amino acids are deleted, substituted, inserted, or added in the amino acid sequence of SEQ ID NO: 2, 4, 38, or 40. The Office Action asserts that no information, beyond the characterization of protein having endoglucanase activity has been provided, to show that Applicants had possession of the claimed genus. Therefore, the Office Action concludes that one skilled in the art cannot reasonably conclude that Applicants had possession of the claimed invention at the time the instant application was filed (at page 7).

In response, Applicants note that one skilled in the art would clearly understand based upon common technical knowledge in the art and the disclosure, for instance, at page 13-15, that Applicants had possession of the claimed modified protein in which one or plural amino acids are deleted, substituted, inserted, or added in the amino acid sequence of SEQ ID NO: 2, 4, 38, or 40. Nevertheless, and solely to advance prosecution of the present application, claims 5, 6, 19, and 20 have been canceled without prejudice. In addition, claim 7 has been amended to delete “a modified protein comprising an amino acid sequence in which one or plural amino acids are deleted, substituted, inserted, or added in the amino acid sequence of SEQ ID NO: 2, 4, 38, or

40” and “whose reduction in the presence of a surfactant is small.” Claim 16 has been amended to be dependent on claim 7.

Accordingly, the rejection under 35 U.S.C. § 112, first paragraph, is rendered moot.

2. Enablement

Claims 5-7, 16 and 19-20 are rejected under 35 U.S.C. § 112, first paragraph, because although the specification is asserted to be enabling for modified cellulase enzymes of SEQ ID NOs: 2, 4, 38 or 40 having endoglucanase activity, wherein the reduction of endoglucanase activity in presence of surfactant is small compared to in absence of surfactant, the specification does not reasonably provide enablement for any modified protein from any source having endoglucanase activity or any modified protein comprising an amino acid sequence in which one or plural amino acids are deleted, substituted, inserted, or added in the amino acid sequence of SEQ ID NO: 2, 4, 38, or 40, and having an endoglucanase activity (part b); or any homologous protein having at least 85% to homology to SEQ ID NO: 2, 4, 38, or 40, and having an endoglucanase activity, wherein the reduction of endoglucanase activity in the presence of surfactant is small.

As discussed above, one skilled in the art would be enabled to make the presently claimed invention based upon the guidance provided by the disclosure in the specification and the common technical knowledge possessed by one skilled in the molecular biology arts. Nevertheless, and solely to advance prosecution of the present application, claims 5, 6, 19, and 20 have been canceled without prejudice. Accordingly, the rejection is rendered moot with regard to claims 5, 6, 19, and 20.

In addition, claim 7 has been amended to delete “a modified protein comprising an amino acid sequence in which one or plural amino acids are deleted, substituted, inserted, or added in

the amino acid sequence of SEQ ID NO: 2, 4, 38, or 40” and “whose reduction in the presence of a surfactant is small”, and to recite “(a) a protein comprising the amino acid sequence of SEQ ID NO: 2, 4, 38, or 40; and (b) a protein comprising an amino acid sequence having at least 85% identity to the amino acid sequence of SEQ ID NO: 2, 4, 38, or 40, and having an endoglucanase activity”. Claim 16 has been amended to be dependent on claim 7.

Applicants note that the Board of Appeals and Interferences in *Ex parte Kubin* (BPAI 2007) has recognized that mere routine experimentation is required to enable the full scope of Applicants’ claims reciting nucleic acids encoding proteins at least 80% identical to the disclosed amino acid sequence claimed. In the present case, the claimed protein has at least 85% sequence identity to the amino acid sequence of SEQ ID NO: 2, 4, 38, or 40 and having an endoglucanase activity.

Reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, first paragraph, is respectfully requested.

Response To Claim Rejections Under 35 U.S.C. § 102

Claims 5-6, 7, 16, 19 and 20 are rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by Kleywegt *et al.* (Mol Biol. 272(3):383-97 (1997)). Kleywegt is asserted to teach catalytic core domain of an endoglucanase I (EG I), a modified form of EG I, wherein catalytic core domain comprises amino acid residue 1-374, wherein amino acid at position 1 of N-terminus is glutamine and a crystal structure, alignment of the amino acid sequences of the catalytic core domains of EG I and CBH I, wherein N-terminal amino acid is glutamine, which will be instantly converted or cyclized to pyroglutamic acid in solution, and recombinant expression of the modified protein in *Trichoderma reesei*. Claim 6 is asserted to be rejected because the modified protein of claim 6 is structurally the same as the modified protein of claim

5. Claim 7 is asserted to be rejected because of the limitation in part (b) in which one or plural amino acids are deleted, substituted, inserted, or added in the amino acid sequence of SEQ ID NO: 2, 4, 38, or 40.

In response, Applicants note that the presently claimed protein is not explicitly or inherently disclosed by Kleywegt. Nevertheless, and solely to advance prosecution of the present application, claims 5, 6, 19, and 20 have been canceled. Claim 7 has been amended to delete “a modified protein comprising an amino acid sequence in which one or plural amino acids are deleted, substituted, inserted, or added in the amino acid sequence of SEQ ID NO: 2, 4, 38, or 40” and “whose reduction in the presence of a surfactant is small”, and to recite that the claimed protein is selected from the group consisting of: (a) a protein comprising the amino acid sequence of SEQ ID NO: 2, 4, 38, or 40; and (b) a protein comprising an amino acid sequence having at least 85% identity to the amino acid sequence of SEQ ID NO: 2, 4, 38, or 40, and having an endoglucanase activity.”

Accordingly, the rejection under 35 U.S.C. § 102(b) is rendered moot.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby earnestly solicited.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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